Abstract Submitted
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Photo-disintegration of ^{3}He below E_γ = 15 MeV at HI$\vec{\gamma}$S[1] B.A. PERDUE, M.W. AHMED, S.S. HENSHAW, J. LI, S. MIKHAILOV, S. STAVE, H.R. WELLER, Y. WU, Duke U. and TUNL, P.P. MARTEL, A. TEYMURAZYAN, UMass, Amherst and TUNL — Differential cross sections of the ^{3}He(γ,n)pp reaction have been measured at HI$\vec{\gamma}$S. Measurements were taken at E_γ = 11.4, 12.8, 13.5, and 14.7 MeV. The breakup neutrons were detected using liquid scintillator detectors placed at 75 cm from the target center and at the scattering angles of θ = 50°, 75°, 90°, 105°, 130°, and 160°. At a given scattering angle, theory[2] predicts that $\frac{d^3\sigma}{dE_n d\Omega_n}(E_n)$ peaks near E_n^{max}. This peaking in the energy distribution is predicted to begin around E_γ = 10 MeV and becomes more pronounced as the incident γ-ray energy is increased. Below E_γ = 10 MeV and at a given scattering angle the predicted neutron energy distribution is consistent with a *phase space only* neutron energy distribution. The measured differential cross sections for E_γ = 11.4 and 12.8 MeV do not show peaking in the neutron energy distribution as predicted by theory, and the shape of the energy distribution at a given scattering angle is consistent with the shape of a phase space distribution. The peaking near E_n^{max} of the energy distribution is observed at E_γ = 13.5 and 14.7 MeV.

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[2]Deltuva *et. al.* Phys. Rev. **C72** 054004 (2005)

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